

MySQL®

Chapter 19: Arithmetic

Section 19.1: Arithmetic Operators

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Operator	Name	Example
+	Addition	SELECT 1+5; --> 6 SELECT 3+2; --> 5.5
-	Subtraction	SELECT 3-5; --> -2 SELECT 3 * 5; --> 15
*	Multiplication	SELECT 28 / 4; --> 5 SELECT 55 / 115; --> 3.1416
/	Division	SELECT 16.8 / 0; --> NULL
DIV	Integer Division	SELECT 5 DIV 3; --> 2 SELECT 7 % 3; --> 1 SELECT 19 MOD 4; --> 3 SELECT 15 MOD 4; --> 3 SELECT -15 MOD -4; --> 3 SELECT 2 MOD 2.5; --> 0.5
% or MOD	Modulo	

BIGINT

If the numbers in your arithmetic are all integers, MySQL will use the **BIGINT** data type. For example:

```
1024 * 1024 * 1024 + 1 -> 1,152,921,504,608
```

```
select (1024 * 1024 * 1024 * 1024
```

and ... 1024 * 1024 * 1024 * 1024 * 1024 -> MEGIBIT out of R

select 1024 * 1024 * 1024

DOUBLE

Section 19.2: Mathematical Constants

The following returns the value of `PI` formatted to 6 decimal places. The

10.3: Trigonometry (SIN, COS)

Section 19.3: Trigonometry (SIN, COS)

Section 19.3: The Machine
Angles are in Radians, not Degrees. All computations are done in floating point, so all computations are subject to small errors, known as **machine epsilon**. These errors are built in to the technology. There is no way to avoid these errors when using floating point; they are implicitly converted to floating point, and then trigonometric computations; they are implicitly converted to floating point, and then

If you use **DECIMAL** values in your queries, MySQL® Notes for Professionals

Chapter 20: String operations

Name	Description
ASCII	Return numeric value of left-most character
BIND	Return a string containing binary representation of a number
BIT_LENGTH()	Return length of argument in bits
CHAR()	Return the character for each integer passed
CHAR_LENGTH()	Return number of characters in argument
CHARACTER_LENGTH()	Synonym for CHAR_LENGTH()
CONCAT()	Return concatenated string
CONCAT_WS()	Return concatenate with separator
CTO	Return string at index number
EXPORT_SET()	Return a string such that for every bit set in the value bits, you get an on string and if every unset bit, you get an off string
FIELD()	Return the index (position) of the first argument in the subsequent arguments
FIND_IN_SET()	Return the index position of the first argument within the second argument
FORMAT()	Return a number formatted to specified number of decimal places
FROM_BASE64()	Decode to a base-64 string and return result
FROM()	Return a hexadecimal representation of a decimal or string value
INDEX()	Insert a substring at the specified position up to the specified number of characters
INSTR()	Return the index of the first occurrence of a substring
LCASE()	Synonym for LOWER()
LEFT()	Return the leftmost number of characters as specified
LENGTH()	Return the length of a string in bytes
LIKE	Simple pattern matching
LOAD_FILE()	Load the named file
LOCATE()	Return the position of the first occurrence of substring
LOWER()	Return the argument in lowercase
LPAD()	Return the string argument, left-padded with the specified string
LTRIM()	Remove leading spaces
MASK_STRING()	Return a set of comma-separated strings that have the corresponding bit in its set
MATCH	Perform full-text search
MID()	Return a substring starting from the specified position
NOT LIKE	Negation of simple pattern matching
NOT REGEXP	Negation of REGEXP
OCCTO	Return a string containing octal representation of a number
ORD_CHAR_LENGTH()	Synonym for LENGTH()
ORD()	Return character code for leftmost character of the argument
POSITION()	Synonym for LOCATE()
QUOTE()	Escape the argument for use in an SQL statement
REGEXP	Pattern matching using regular expressions
REPEAT()	Repeat a string the specified number of times
REPLACE()	Replace occurrences of a specified string
REVERSE()	Reverse the characters in a string
RIGHT()	Return the specified rightmost number of characters
RULES	Synonym for REGEXP

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Chapter 21: Date and Time Operations

Section 21.1: Date arithmetic

21.1: Date arithmetic

```
NOW() = INTERVAL 1 DAY -- This time tomorrow  
CURDATE() = INTERVAL 4 DAY -- Midnight 4 mornings ago
```

Show the mysql questions stored at

INTERVAL 4 DAY -- Midnight 4 mornings ago

Show the mysql questions stored that were asked 3 to 10 hours ago (180 to 600 minutes ago)

```
SELECT qid, askDate, answerDiff
FROM
(
  SELECT qid, askDate,
    TIME_TO_SEC(TIMEDIFF(NOW(), askDate)) AS answerDiff
  FROM mysql_questions
  WHERE TIME_TO_SEC(TIMEDIFF(NOW(), askDate)) BETWEEN 180 AND 600
)
```

```
SELECT qid, askDate, minuteDiff
FROM
(
  SELECT qid, askDate,
  TIMESTAMPDIFF(MINUTE, askDate, now()) as minuteDiff
  FROM questions_mysql
) x
WHERE minuteDiff BETWEEN 100 AND 600
ORDER BY qid DESC
LIMIT 50;
```

id	askdate	minotdrff
30546608	2016-07-23 22:06:50	
30546733	2016-07-23 21:53:26	182
30546767	2016-07-23 21:48:46	195
30546887	2016-07-23 21:45:26	200
...		203

MySQL manual pages for [TIMESTAMPDIFF\(\)](#)
Beware (Do not use)

Be aware Do not try to use expressions like `CURDATE()` + 1 for date arithmetic in MySQL. They don't return what you expect, especially if you're accustomed to the Oracle database product. Use `CURDATE()` + `INTERVAL 1 DAY` instead.

Section 21.2: SYSDATE(), NOW(), CURDATE()

SELECT SYSDATE();

This function returns the current date and time as a value in 'YYYY-MM-DD HH:MM:SS' or 'YYYYMMDDHHMMSS' format, depending on whether the function is used in a string or numeric context. It returns the date and time in the current time zone.

SELECT NOW();

This function is a synonym for SYSDATE().

This function is a synonym for `EXTRACT()`.

```
SELECT CURRENT();
```

This function returns the current date, without any time, as a value in 'YYYY-MM-DD' or 'YYYYMMDD' format depending on whether the function is used in a string or numeric context. It returns the date in the current time zone.

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